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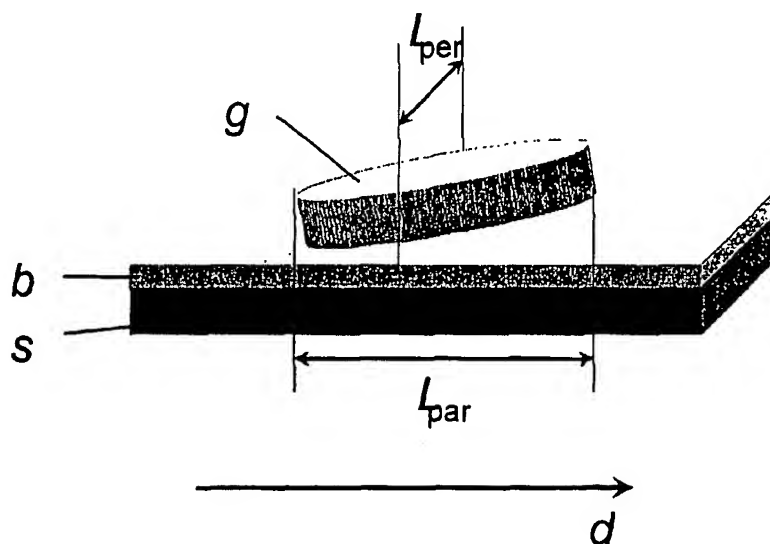
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(57) Abstract: The present invention concerns the improvement of the supercurrent carrying capabilities, i.e. the increase of critical current densities, of polycrystalline superconductor structures, especially of high- T_c superconductors. By modifying the microstructure of the substrate or by appropriately influencing the buffer layers in coated conductors to obtain grains with large aspect ratios which are predominantly oriented along the direction of the current flow, grain boundaries with large areas are obtained in the polycrystalline superconducting film that can support large critical currents along the superconductor. Thereby large critical currents are obtained in the superconductor for a given spread of misorientation angles of the grains.

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